

Remarks

In the subject Office Action, claims 18 and 19 were withdrawn from further consideration. While it was indicated that 35 USC 103(a) forms the basis for all obviousness rejections set forth in the Office Action, claims 1-4 were allegedly rejected under 35 USC 102(b) as being anticipated by Robertson in view of Reither. Claims 2 and 7 were rejected under 35 USC 103(a) as being unpatentable over Robertson in view of Schlor. Claims 5 and 6 were rejected under 35 USC 103(a) as being unpatentable over Robertson in view of Reither and further in view of Wolfert. Claims 8-10 and 20 were rejected under 35 USC 103(a) as being unpatentable over Robertson in view of Reither and further in view of Shanks. Claims 11 and 12 were rejected under 35 USC 103(a) as being unpatentable over Robertson in view of Reither and further in view of Greenleaf.

Claims 13, 14 and 17 were rejected under 35 USC 103(a) as being unpatentable over Robertson in view of Reither, Schlor and Shanks. Claim 15 was rejected under 35 USC 103(a) as being unpatentable over Robertson in view of Reither, Schlor and Shanks and further in view of Greenleaf.

The rejection of claims 1 and 4 as being anticipated by Robertson in view of Reither is respectfully traversed with respect to claims 1 and 4 as amended. Applicant has amended claim 1 to indicate that the blower means is positioned remotely downstream of the air filter means and the air supply means is mounted in line downstream of the blower means. Applicant

submits that neither Robertson nor Reither, nor any combination of same discloses the invention as defined by applicant in claim 1. Further, applicant defines its blower as being a single inlet backward curve centrifugal fan with a circular inlet and a circular outlet. There is no indication in Reither that the outlet 11 is circular in shape. Applicant submits that neither Robertson nor Reither anticipates applicant's claim 1 as presently worded, and that a combination of Robertson and Reither do not anticipate or make obvious the invention as defined in claim 1.

While applicant does not argue that claim 4 is independently patentable, it is patentable as depending from claim 1 which should be allowed over the references of record. Reconsideration and withdrawal of the rejection is respectfully requested.

The rejection of claims 2 and 7 as being obvious with respect to Robertson in view of Reither and further in view of Schlor is respectfully traversed with respect to claims 2 and 7, as amended. Applicant has substantially amended claim 2 to further define the pleated filter media of the first filter cartridge in substantial detail. As such, the filter utilized by applicant provides substantially more filtering media area than is found in currently utilized HEPA filters. Applicant submits that the combination of all of the elements found in claim 1 plus the elements of claim 2 substantially define an invention which is not obvious over Robertson or Reither further in view of Schlor. Applicant's invention is found in the unique novel and unobvious combination of elements, each of which in some partial

form may be found in the prior art. However, together, these elements provide a new and improved clean air filter and delivery apparatus that is substantially more efficient than that heretofore known in the art. As with claim 4, applicant does not claim independent patentable status of claim 7 but argues that when claim 7 depends from claim 1, there is allowable subject matter therein.

Applicant also submits that Schlor does not disclose a pleated filter, but only a zig zag recess 14 in a filter frame. Reconsideration and withdrawal of the rejection is respectfully requested. It is also worthwhile to note that the Schlor reference discloses filter cartridges for use in vehicle air conditioning systems, not in the clean air filter and delivery apparatus for mounting on the grid openings of a suspended ceiling of an enclosed building area independent of any heating ventilating and air conditioning apparatus therein. Reconsideration and withdrawal of the rejection is respectfully requested.

The rejection of claims 5 and 6 as being obvious over Robertson in view of Reither and further in view of Wolfert is respectfully traversed with respect to claims 5 and 6 as amended. Nowhere in Robertson, Reither or Wolfert is there disclosed the remote positioning of the single inlet backward curve centrifugal fan or the inline placement of the elements as defined in applicant's claim 1, and from which claims 5 and 6 are dependent. In view of the allowable subject matter in claim 1, applicant submits that the rejection of claims 5 and 6 should be withdrawn.

Applicant submits that claims 8 and 20 disclose a clean air filter and delivery apparatus having certain elements therein specified as in-line, wherein the Shanks reference discloses in Fig. 1 exhaust and supply modules that feed into the blower module and filter modules definitely not being in-line therewith. Applicant submits that none of the patents or any combination thereof disclose the ordering of elements as defined in applicant's claims 8 and 20 as amended. Applicant has cancelled claims 9 and 10. Reconsideration and withdrawal of the rejection is respectfully requested.

The rejection of claims 11 and 12 as being obvious over Robertson in view of Reither, Schlor and Shanks is respectfully traversed. Applicant has amended claim 11 substantially in the form of the amendment to claim 2 which also depends from claim 1 with claim 11 further defining an airtight hollow box having a first filter cartridge therein. Applicant does not argue the independent patentability of claim 12 which depends from claim 11, but argues that neither Robertson, Reither or Greenleaf disclose applicant's invention as claimed in claim 11. As indicated in applicant's previous submission, Greenleaf is not a very good reference because it discloses a portable filter apparatus that is mountable on a movable cart or dolly rather than the apparatus as claimed by applicant. Also, the number of combined references is getting too large to prove obviousness. Reconsideration and withdrawal of the rejection of claims 11 and 12 is respectfully requested.

The rejection of claims 13-14 and 17 as being obvious over Robertson in view of Reither, Schlor and Shanks is respectfully traversed. Claim 13 has been amended similarly to claim 2 and claim 11 to more specifically define the air filter cartridge and the pleated filter element. Also, claim 17 has been amended to more specifically define the pleated filter media. Applicant submits that neither Robertson, Reither, Schlor nor Shanks or any combination of same disclose the invention as defined and claimed in applicant's claims 13, 14 and 17. Applicant does not argue that claim 14 has independent patentability, but that it depends from claim 13 which should be in form for allowance. Again, the number of cumulative references is getting so high that they tend to prove unobviousness. Reconsideration and withdrawal of the rejection is respectfully requested.

The rejection of claim 15 as being obvious over Robertson in view of Reither, Schlor and Shanks and further in view of Greenleaf is respectfully traversed, both for the reasons given in the first amendment, and for the amendment of independent claim 13 in the present amendment, from which claim 15 depends. Reconsideration and withdrawal of the rejection is respectfully requested.

The rejection of claim 16 as being obvious in view Robertson in view of Reither, Schlor and Shanks and further in view of Wolfert is respectfully traversed, both for the reasons given in the previous amendment, and for the amendment of claim 13 in the present amendment from which claim 16 depends. Reconsideration and withdrawal of the rejection is respectfully requested.

With respect to the Examiner's response to applicant's arguments, the amendment to claim 11 discloses structure that is missing from the Greenleaf patent, namely the filter including a plurality of backfolded pleats that extend perpendicularly to and between the upper and lower surfaces, etc. Additionally, while the Examiner has stated that applicant has not disclosed that the claim rigid spiral duct work solves any stated problems in a new or unexpected way or is for any particular purpose which is unobvious, it is not the ductwork per se, but the remote location of the single inlet, single outlet backward curved centrifugal fans as a result of having the ductwork as claimed that provides the unobvious results. The ductwork as found in applicant's claims when positioned both before both upstream and downstream of the claimed backward curved centrifugal blower move air in a very efficient manner not found when the blower is mounted within the same framework as the filter apparatus. Further, the in-line arrangement as claimed by applicant provides additional efficiency for moving air through the clean air filter and delivery apparatus as claimed.

With this amendment it is believed that all grounds for objection and rejection have been overcome and that this application is in condition for allowance. Such action is

courteously solicited.

Respectfully submitted,

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I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the United States Postal Service as First Class Mail with sufficient postage in an envelope addressed to: Commissioner of Patents and Trademarks, Washington DC 20231, on March 11, 2004.

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Appendix.

1. A clean air filter and delivery apparatus in combination for mounting on a plurality of grid openings of a suspended ceiling of an enclosed building area independent of any heating, ventilating and air conditioning apparatus therein, said apparatus comprising:

air return means mountable on a first grid opening of a suspended ceiling for receiving pre-filtered air flow therethrough,

air filter means mounted above any suspended ceiling and in fluid communication with said air return means,

blower means mounted above any suspended ceiling and positioned remotely downstream of said air filter means in air tight in-line fluid communication therewith for efficiently pulling air through said air filter means, said blower including, a single inlet backward curved centrifugal fan including a circular inlet and a circular outlet for air tight mating engagement with said flexible duct means,

air supply means mountable downstream of said blower means in-line therewith on a second grid opening of a suspended ceiling remote from a first grid opening thereof for delivering filtered air flow therethrough, and

flexible duct means positioned above any suspended ceiling between said blower means and said air supply means for delivering air tight fluid flow therebetween.

2. The clean air filter and delivery apparatus as defined in claim 1 wherein said air filter means comprises,

a first filter cartridge having a frame including upper and lower surfaces joined by opposing end surfaces and an elongate sheet of pleated filter media extending substantially from one end surface to the opposing end surface with said pleats thereon substantially perpendicularly to and between said upper and lower surfaces for greatly increasing the surface area of said filter media with respect to a cross-sectional area of said frame.

Please cancel claims 9 and 10 without prejudice.

11. The clean air filter and delivery apparatus as defined in claim 1 wherein said air filter means comprises,

an air tight hollow box including a circular inlet and a circular outlet having a first filter cartridge therein, said filter cartridge having a frame including upper and lower surfaces and elongate frame members therebetween, and elongate sheet of filter media extending in a plurality of backfolded pleats substantially perpendicularly to and between said upper and lower surfaces between said elongate frame members for increasing the area of filtering media filtering air flowing therethrough.

13. A clean air filter and delivery apparatus in combination for mounting on a plurality of grid openings of a suspended ceiling of an enclosed building area independent of any

heating, ventilating and air conditioning apparatus therein, said apparatus comprising:

an air return having a rectangular border for mounting on a first grid opening, said air return including a circular outlet for air tight connection with a flexible duct work,

an air filter cartridge in fluid communication with said air return, said filter cartridge including a frame including upper and lower surfaces and elongate frame members therebetween, an elongate sheet of filter media extending in a plurality of backfolded pleats substantially perpendicularly to and between said upper and lower surfaces between said elongate frame members for an increased filtering media area of filtering air flowing therethrough,

a single inlet backward curved centrifugal fan including a circular inlet and a circular outlet, said fan efficiently drawing air through said return and through said air filter cartridge and drawing filtered air through said centrifugal fan while pushing air through said air delivery supply,

a flexible ductwork positioned in air tight relation between said air return circular outlet and said circular inlet of said centrifugal fan,

an air delivery supply having a rectangular border for mounting on a second grid opening remote from a first grid opening and having a circular inlet thereon, and

a flexible ductwork positioned in air tight relation between said centrifugal fan outlet and said air delivery supply circular inlet.

17. A clean air filter and delivery apparatus in combination for suspended mounting from a ceiling of an enclosed building area independent of any heating, ventilating and air conditioning apparatus therein, said apparatus comprising:

an air return including a circular outlet for air tight connection with rigid spiral duct work,

an air filter cartridge in fluid communication with said air return, said filter cartridge including a frame including upper and lower surfaces and elongate frame members therebetween, an elongate sheet of filter media extending in pleats substantially perpendicularly to and between said upper and lower surfaces between said elongate frame members for filtering air flowing therethrough,

a single inlet backward curved centrifugal fan including a circular inlet and a circular outlet, said fan efficiently drawing air through said return and through said air filter cartridge and drawing filtered air through said centrifugal fan while pushing air through said air delivery supply,

a rigid spiral ductwork positioned in air tight relation between said air return circular outlet and said circular inlet of said centrifugal fan,

an air delivery supply having a rectangular border for mounting on a second grid opening remote from a first grid opening and having a circular inlet thereon, and

a flexible ductwork positioned in air tight relation between said centrifugal fan outlet and said air delivery supply circular inlet.